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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,557	12/11/2003	Donald M. Stromquist	480-1-004	8759

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EXAMINER

ZALUKAEVA, TATYANA

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 03/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

LD

Office Action Summary	Application No. 10/733,557	Applicant(s) STROMQUIST, DONALD M.	
	Examiner Tatyana Zalukaeva	Art Unit 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 10-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-23 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Election/Restrictions

1. Applicant's election was treated as made without traverse of Claims 1-9 in the reply filed on 01/10/2005. Applicant has not pointed out or rebutted the fact that the reasons advanced by the Examiner that the Groups of claims are patentably distinct is an error. The election is acknowledged. Claims 10-23 stand withdrawn from consideration.
2. Applicant amended claim 1 to include the limitation that the ion exchange resin is non magnetic.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
4. Claims 1-9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation that the "ion exchange resin is non magnetic" is not supported by the instant specification. Applicants themselves recognize in the remarks filed 01/10/2004 that "While the specification **does not use the term nonmagnetic**, (emphasis added) all of the resins used as examples in the specification are nonmagnetic resins, and most ion exchange resins are nonmagnetic. Nonmagnetic

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resins are clearly included within the scope of the disclosure and the scope of the initial claims." Thus, not only examples or preferred embodiments of the specification are considered, but the specification as a whole, which does not preclude the resins of being magnetic, and does not limit the resins to only those exemplified.

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1 and 9 stand rejected under 35 U.S.C. 102(b) as being anticipated by Kochen et al (U.S. 5,652,190).

With regard to claim 1, Kochen discloses improved water decontamination process using ion exchange polymer resins in the presence of a magnetic field (see abstract). Fig.6 shows the initial decrease in plutonium concentration (i.e. **initial increase of ion exchange capacity of the resin**) for both types of resins **magnetic and non-magnetic**. (see Fig. 6 and col.7, lines 13-17). FIG. 2 Shows a schematic drawing of an apparatus preferred for the decontamination method of the invention, which clearly reads on the limitations of the instant claim 9.

7. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by J Colloid Interface Sci. 1999 Feb 1;210(1):1-7. "Magnetic Effect on Ion-Exchange Kinetics" Oshitani J, Yamada D, Miyahara M, Higashitani K.

Oshitani et al disclose effects of magnetic exposure on an ion-exchange process are investigated, employing ion-exchange resins. The electrolyte solution, resin suspension,

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and water are mixed in a container, and the mass transfer coefficient is determined by measuring the change of the ionic concentration in the bulk. Two methods of magnetic exposure are performed: case (1) in which only the electrolyte solution is exposed to the magnetic field and case **(2) in which only the resin suspension is exposed to the magnetic field.** The following features are found in both cases: (i) the film mass transfer rate reduces by about 5% when the exposure time is greater than 25 min, (ii) the magnetic effect is reduced by adding the alcohol, (iii) the magnetic effect remains for about 3 days but disappears after 6 days, and (iv) the magnetic effect is observable in the solutions of structure-disordering ions, but not in the solutions of structure-ordering ions. As for the temperature dependence, the magnetic effect decreases with temperature in case (1) but it stays constant in case (2).

8. Claims 1-3, 7, 8 are rejected under 35 U.S.C. 102(b) as being anticipated by RU 2064693.

A mixture of an ion-exchange resin (5) with grains having ferromagnetic properties is placed in the internal space of a container (1) and a boiling layer is formed with a height equal to the height of a section of **magnetic coils** (2). The coils are moved upwards along the longitudinal axis of the container from its lower end at a speed depending on the volume capacity of the ion-exchange resin. During movement of the magnetic coils, the direct magnetic field acts on the grains of the resin with ferromagnetic properties, which acquire **rotary and oscillating movements**. A pseudo-liquefied layer is formed and moved upwards and slag corrosion products having magnetic properties are pulled

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to the ferromagnetic grains and are moved to the upper level of the water in the container. The ion-exchange resin with collected magnetic corrosion prods. is then separated from the water flow in a magnetic trap (see abstract).

9. Claims 1, 2 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by SU 636254.

Ion exchange process is performed for water preparation for brewing by treating with an ion exchange resin in the presence of a uniform magnetic field of intensity 6.60-8., a/m., current strength 1.6-2.0 a. and voltage 18.0-24.0 V for H-cation form resins, and intensity 7.90-9.97 a/m current strength 1.6-2.0 a and voltage 24.0-30.0 V for Ca-cation form resins (abstract).

10. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kochen in view of RU'254 or RU'693, each one individually.

Kochen discloses the assembly according to the preferred embodiment, wherein a vertical glass column (1) is placed between the pole faces (2a) and (2b) of an electromagnet. A piece of stainless steel wool (3) is positioned inside the column, approximately equidistant from both ends (col.5, lines 1-8). Kochen does not specifically indicate that the magnetic field is produced by the coil or wire by applying a varying magnetic field. With regard to the use of coil or wire, it is note that the recited limitation is merely a device for performing otherwise known process, and therefore, those skilled in the art would have found obvious to utilize the coils of similar RU'254 (that provides varying magnetic field) or RU'693 in the process of Kochen in order to achieve the required magnetic field with the reasonable expectation of success.

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With specific regard to claim 4, it is known in the art that the most commonly and notoriously utilized form of DC and AC is a sinus wave , and therefore it is within the skill in the art to use such current in a process of Kochen to generate the magnetic field.

11. Claims 1, 2, 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Rosensweig et al (U.S. 4,668,379).

Rosensweig discloses process of magnetic stabilization of fluidized bed containing non-magnetic particles by applying either uniform or varying magnetic field (title, abstract, , especially col.3, lines 60-65 and col.4, lines 52-56). Among the particles to which magnetic field is applied are named cation exchange resins, such as those listed in col.8, lines 3-15.

Response to Arguments

12. Applicant's arguments filed 01/10/2005 have been fully considered but they are not persuasive. Applicants arguments reside in contention that magnetic nature of the resin is important in Kochen. Col. 2, lines 39-43 of Kochen indicate that alone, however, organic resins are not especially effective for purposes of removing actinides from water. Further, Fig. 6 of Kochen compares results for plutonium removal using a magnetic resin in the magnetic field and using a nonmagnetic resin in the same magnetic field. Col. 7, lines 6-18 discuss the results and show that the magnetic field only work to improve the results for magnetic resin, not the nonmagnetic resin. Thus, Kochen teaches the importance of using magnetic resin. This is not found persuasive, because of two reasons:

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- nonmagnetic resins of the instant claims are not supported by the instant specification, as reflected in 35 USC 112, first paragraph rejection above;
- Kochen does teach the treatment of non-magnetic resin with magnetic field, as Fig.6 shows the initial decrease in plutonium concentration (i.e. **initial increase of ion exchange capacity of the resin**) for both types of resins **magnetic and non-magnetic**. (see Fig. 6 and col.7, lines 13-17).

Thus, treatment of non-magnetic resin in Kochen is a non-preferred embodiment, and Applicants are reminded that disclosed examples and preferred embodiments do not constitute a teaching away from a **broader disclosure or nonpreferred embodiments**. *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). "A known or obvious composition does not become patentable. A reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, **including non-preferred embodiments**," *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989). See also *Celeritas Technologies Ltd. v. Rockwell International Corp.*, 150 F.3d 1354, 1361, 47 USPQ2d 1516, 1522-23 (Fed. Cir.1998).

With regard to SU 2064693, Applicants arguments reside in contention, as in Kochen, magnetic resin is used. In this case rationale applied in the first argument on Kochen's reference is incorporated herein.

With regard to SU 636254, Applicants argue that abstract merely says that water is prepared for brewing by treating the water with an ion exchange resin in the presence of

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a uniform magnetic field, and that the method is intensive and produces a good quality brewing water. There is nothing in the abstract to indicate why the magnetic field is used and how it is used. Further, there is nothing in the abstract to indicate how the magnetic field and the ion exchange process are related and, if related, what effect one has on the other exchange resin. The abstract says that a good quality brewing water is obtained. This is not found persuasive, because the SU'254 abstract clearly states that ion exchange resin is used in the presence of magnetic field. As for the outcome of the process and the quality of water, the abstract states that The method is intensive and produces a good quality brewing water. Furthermore, it is axiomatic that one who performs the steps of a process must necessarily produce all of its advantages. Mere recitation of a newly discovered property or function that is inherently possessed by the things or steps in the prior art does not cause a claim drawn to those things to distinguish over the prior art. *Leinoff v. Louis Milona & Sons, Inc.* 220 USPQ 845 (CAFC 1984). Applicants further argument is that claim 2 requires varying magnetic field, while the applied references provide for uniform magnetic fields. Although, there is no mentioning and guidance in the instant specification, as to what is meant by varying magnetic field, it is assumed that the way of making magnetic field described in Applicants' specification, produces varying magnetic field. The same way of making magnetic field is found in Kochen and other references, therefore, the magnetic field of these references is inherently the same.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tatyana Zalukaeva whose telephone number is (571) 272-1115. The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tatyana Zalukaeva
Primary Examiner
Art Unit 1713

March 25, 2005

A handwritten signature in black ink, appearing to read 'T. Zalukaeva', with a long, sweeping horizontal stroke extending to the right.